BEFORE THE ILLINOIS COMMERCE COMMISSION

Docket No. 02-0365

Rebuttal Testimony of Dr. Debra J. Aron

On Behalf of SBC Ameritech Illinois

Ameritech Illinois Exhibit 7.0

July 2, 2002

DIRECT TESTIMONY OF DR. DEBRA J. ARON
ON BEHALF OF SBC AMERITECH ILLINOIS

I. PURPOSE AND ORGANIZATION OF TESTIMONY

Q.1 Please state your name and position.

A.1 My name is Debra J. Aron. I am the Director of the Evanston office of LECG Consulting, LLC and Adjunct Associate Professor at Northwestern University. My business address is 1603 Orrington Avenue, Suite 1500, Evanston, IL 60201.

Q.2 Please describe LECG, LLC.

A.2 LECG, LLC is an economics and finance consulting firm, providing economic expertise for litigation, regulatory proceedings, and business strategy. Our firm comprises more than 200 economists from academe and business, and has 15 offices in seven countries. LECG's practice areas include antitrust analysis, intellectual property, and securities litigation, in addition to specialties in the telecommunications, gas, electric, and health care industries.

Q.3 Please describe your professional qualifications.

A.3 I received a Ph.D. in economics from the University of Chicago in 1985, where my honors included a Milton Friedman Fund fellowship, a Pew Foundation teaching fellowship, and a Center for the Study of the Economy and the State dissertation fellowship. I was an Assistant Professor of Managerial Economics and Decision Sciences from 1985 to 1992, at the J. L. Kellogg Graduate School of Management, Northwestern University, and a Visiting Assistant Professor of Managerial Economics and Decision Sciences at the Kellogg School from 1993-1995. I was named a National Fellow of the Hoover Institution, a think tank at Stanford University, for the academic year 1992-1993, where I studied innovation and product proliferation in multiproduct firms. Concurrent with my position at Northwestern University, I also held the position of Faculty Research Fellow with the National Bureau of Economic Research from 1987-1990. At the Kellogg School, I have taught M.B.A. and Ph.D. courses in managerial economics, information economics, and the economics and strategy of pricing. I am a member of the American Economic Association and the Econometric Society, and an Associate member of the American Bar Association. My research focuses on multiproduct firms, innovation, incentives, and pricing, and I have published articles on these subjects in several leading academic journals, including the *American Economic Review*, the *RAND Journal of Economics*, and the *Journal of Law, Economics, and Organization*.

I have consulted on numerous occasions to the telecommunications industry in the U.S. and internationally on competition, pricing, strategic, and regulatory issues. I also teach a master's level course at Northwestern University on competition in information and network industries. I have testified in several states regarding the proper interpretation of Long Run Incremental Cost and its role in pricing; the measurement of competition in local exchange markets; the role of entry barriers; the economic interpretation of pricing and costing standards in the Telecommunications Act of 1996 ("TA96" or "the Act"); limitations of liability in telecommunications; Universal Service; and proper pricing for mutual compensation for call termination. I have also submitted affidavits to the Federal Communications Commission analyzing the merits of Ameritech's application for authorization under Section 271 of the Telecommunications Act to serve the in-region interLATA market, CC Docket No. 97-137; explaining proper economic principles for recovering the costs of permanent local number portability, CC Docket No. 95-116; explaining the proper economic interpretation of the "necessary and impair" standard for determining which elements should be required, Docket No. 96-98; and an analysis of market power in support of Ameritech's petition for Section 10 forbearance from regulation of high-capacity services in the Chicago LATA, CC Docket No. 95-65. I have conducted analyses of mergers in many other industries under the U.S.

Merger Guidelines. In addition, I have consulted in other industries regarding potential anticompetitive effects of bundled pricing and monopoly leveraging, market definition, and entry conditions, among other antitrust issues, as well as matters related to employee compensation and contracts, and demand estimation. In 1979 and 1980, I worked as a Staff Economist at the Civil Aeronautics Board studying price deregulation of the airline industry. In July 1995, I assumed my current position at LECG. My professional qualifications are detailed in my curriculum vitae, which is attached as Schedule A to my testimony.

Q.4 Please describe the purpose of your testimony.

A.4 The purpose of my rebuttal testimony is to respond to the direct testimony of Dr. James Zolnierek, submitted on behalf of the Illinois Commerce Commission staff.[1] In particular, I explain in the following section that a divergence in the rate structures of special access services and their equivalent unbundled network element (UNE) combinations is an insufficient basis to conclude, as Dr. Zolnierek does, "that current special access rates are not cost based."[2]

In addition, I respond to Dr. Zolnierek's assertion that SBC Ameritech Illinois' special access rate structure is as "an anticompetitive system."[3] I explain that the "true-up" charges for early termination of an SBC Ameritech Illinois special access contract are not anticompetitive, as Dr. Zolnierek alleges.

Finally, I explain that Dr. Zolnierek is in error in implying that the local-use restrictions applied by the Commission and the FCC to determine whether a special access circuit qualifies for conversion to an equivalent UNE combination "impair" the ability of CLECs "to offer telecommunications services in the manner they intend."[4]

[1] Direct Testimony of James Zolnierek, Policy Department, Telecommunications Division, Illinois Commerce Commission, Staff Exhibit 1.0, ICC Docket No. 02-0365, June 25, 2002 (hereafter *Zolnierek Direct*).

[2] *Zolnierek Direct*, p. 23.

[3] *Zolnierek Direct*, p. 32.

[4] *Zolnierek Direct*, pp. 11, 22.

II. A DIVERGENCE IN THE RATE STRUCTURES OF SPECIAL ACCESS SERVICES AND THEIR EQUIVALENT UNBUNDLED NETWORK ELEMENT (UNE) COMBINATIONS IS AN INSUFFICIENT BASIS TO CONCLUDE THAT CURRENT SPECIAL ACCESS RATES ARE NOT COST BASED

Q.5 Dr. Aron, is the TELRIC-based price of a service a good basis upon which to determine whether SBC Ameritech Illinois' special access services are "cost-based"?

A.5 No. Total Element Long-Run Incremental Cost (TELRIC) is a particular methodology developed by the FCC to estimate the forward-looking, hypothetical costs of a service or network element. In a market environment prices also tend to be driven towards cost, but the cost to which prices are driven in unregulated markets is not likely to be a TELRIC-based price. There are a number of reasons that market-determined, cost based prices would not equal TELRIC-based prices. First, when there are firms of varying levels of efficiency in the market, the long-run competitive equilibrium would be characterized by a price that exceeds TELRIC, but equals the marginal cost and average cost of the *least efficient firm in the market*.[5] Second, TELRIC-based pricing will result in a regulated price below cost in a market that is characterized by sunk costs and uncertain demand. Third, the rate structure associated with the TELRIC methodology is only one of many different rate structures observed in markets. It is naive to conclude that a rate structure that diverges from a TELRIC rate structure is necessarily non-cost-based.

A. In markets with firms of varying levels of efficiency, the competitive equilibrium price exceeds the TELRIC-based price

Q.6 Please explain how variations in firm-specific efficiencies can influence the market price.

A.6 Long-run competitive equilibrium can be achieved in markets where firms have heterogeneous costs, if the following additional conditions hold: there is no firm outside

[5] The most basic competitive model, the one that we teach to undergraduates, *assumes* for the sake of simplicity that all firms are identical. In that model, the long run equilibrium price is the one that equals the minimum average cost of *all* of the firms in the market. At that one point of minimum average cost, average cost equals marginal cost. That simple model of homogeneous firms, however, is irrelevant to this discussion, which is predicated on the assumption that firms vary in their efficiencies.

the market that is (potentially) more efficient than any firm in the market; and the specialized resource or information that is the source of the superior efficiency of the more efficient firms in the market cannot be easily (and/or legally) imitated. In this equilibrium, the least efficient firm will earn zero economic profits, and all other (more efficient) firms will earn positive economic profits (or "rents" on their specialized resources or information). Moreover, no firm that is less efficient than those in the market has an incentive to enter, and all firms that are more efficient than the marginal firm have been induced to enter.[6]

While this economic result, that price equals the cost of the least efficient firm in a competitive market, may be counterintuitive, the fallacy that the market price will equal the TELRIC price (i.e., the cost of the hypothetically maximally efficient firm) is clear. To see why, suppose in fact that the price equals the cost of the hypothetically maximally efficient firm in a market. Which firms would be able to cover their costs and survive in that market? Only those firms, if any, that actually have the costs of the hypothetically maximally efficient firm. No firm could, by definition, have lower costs than the hypothetically maximally efficient firm, so no firm could earn a positive economic profit (strictly above its cost of capital). Moreover, any firm with higher costs would necessarily take a loss because price would be below its costs. Such firms would eventually exit. Hence, it *cannot* be true that price equals the cost of the hypothetical maximally efficient firm in equilibrium unless *all firms in the market in fact truly have the cost level of a hypothetical maximally efficient firm.*[7] No firm would choose to stay in a market where prices are not compensatory, given their own forward-looking costs. And

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[6] See F. M. Scherer and David Ross, *Industrial Market Structure and Economic Performance,* (Boston: Houghton Mifflin Company, 1990), p. 21, footnote 10.

[7] If that is not the case, that is, if any firm in the market did not have the cost level of the hypothetical maximally efficient firm, then that firm could not survive, and would exit, which means that the original configuration could not have been an equilibrium. A price at the level of the hypothetical maximally efficient firm would force out any firms with costs above that level.

such a price could not be compensatory except, marginally, to a firm with exactly the hypothetical maximally efficient cost structure.

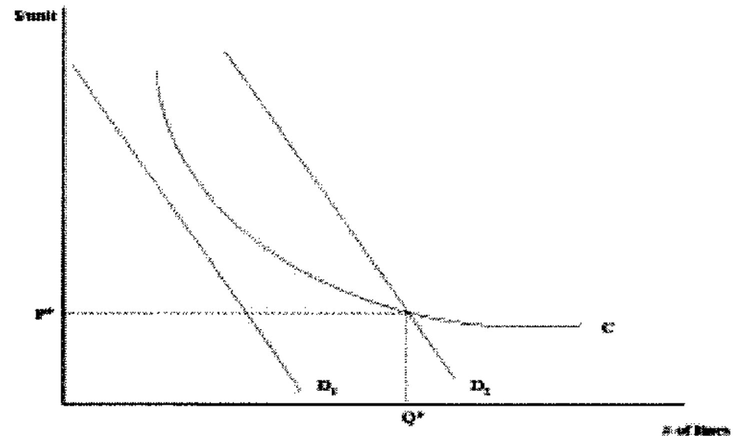
B. TELRIC-based pricing results in a price below cost when there are new investments that will be sunk once made, and demand is uncertain

Q.7 Your second explanation contends that it is unlikely one would observe the market price to equal TELRIC in a non-regulated market because TELRIC-based pricing frequently mistreats the costs associated with sunk investments, particularly in markets where demand is uncertain. Would you please explain?

A. 7 Yes. When relationship-specific sunk investments must be incurred to make a service available, whether or not the service is actually sold or the asset is used over its useful life, TELRIC may not be compensatory. To see why TELRIC would not be compensatory, let us consider an example. Suppose for the purposes of this example that the production of a widget costs \$10 for the first unit produced. Suppose further that the per-unit costs of each additional widget is \$1.00, and that all of these costs include a normal return to capital. Then the price at which the provider could make the investment economically feasible depends on how many widgets it expects to sell. If it expected to sell 10, it would break even at a "TELRIC" price of \$2. If it expected to sell 50, it would break even at a "TELRIC" price of \$1.20. The more widgets it could sell, the lower the break-even price. The number of widgets it could sell depends, however, on the price it charges. This is because purchasers would typically wish to buy more widgets at lower prices. Hence, the lower the price, the more widgets presumably would be purchased.

It is not always the case, however, *that there is any price at which the number of widgets demanded would be sufficient to cover total costs at that price*. This is illustrated in Figure 1. In Figure 1, C represents the average cost curve for widgets. The curve is downward sloping because the fixed costs cause average costs to decline as output increases. Curves D_1 and D_2 represent possible demand curves for widgets.

FIGURE 1



Notice that everywhere D_1 lies is below the cost curve. This means that if demand were like D_1, there would be no price at which the quantity demanded at the TELRIC price would cover total costs. At any TELRIC-based price (any price along C), the quantity demanded by consumers paying that price would be insufficient to cover the fixed costs. If demand were like D_2, there are many cost-recovering prices, and the "TELRIC" based price that would equate supply and demand is at P*,Q*. However, as long as it is uncertain whether demand is generically like D_1 or like D_2, it is possible that there is no TELRIC-based price at which economic feasibility is possible.

Q.8 How do firms in competitive markets handle this problem?

A. 8 There are at least three possible ways. One way is that firms may, as they do in the high-capacity special access market, negotiate term or volume contracts that commit the purchaser to a quantity and a price over time. In exchange for the commitment, the seller makes the fixed and sunk investment and provides the services. The negotiation process permits the parties to determine if there is a mutually feasible and desirable price/quantity combination, and the commitment can be made before the investment is sunk.

A second means of making the investment economically feasible for the seller is for the buyer to pay the relevant fixed costs as a lump sum up front. By bearing the risk of the sunk costs, the buyer has the incentive realistically to assess its projected demand and incur the cost only if the expected demand merits the risk of the investment.

Sometimes firms can be induced to make the sunk investment even without a long term commitment from purchasers or an up front lump sum payment, if they expect a sufficient profit in the event that demand for the product turns out to be high. In other words, firms might be willing to take the risk of losing their entire investment if demand turns out to be low (such as if demand turns out to be like D_1), as long as there is also a possibility of making a sufficient economic profit if demand turns out to be high. However, if the best the firm can hope for in the high-demand state is to break even (that is, earn only a normal return to capital), there is no upside potential profit to compensate for the downside risk. This means that if the best the firm can hope for is a TELRIC-based price, the investment would not be forthcoming in a competitive market because the investment would not be economically feasible. The market price that recovers costs in expected value and induces efficient investment would, therefore, have to exceed the TELRIC-based price.

C. It is false to conclude that rate structures which diverge from TELRIC are necessarily non-cost-based

Q.9 Dr. Zolnierek identifies a distinction in the pricing structure of special access services and the pricing structure of an equivalent combination of UNEs. What specific distinction does he identify and what conclusion does he draw from this distinction?

A. 9 Dr. Zolnierek observes that, unlike UNEs, special access is sold via term agreements in which the price of the service varies with the term length. Based on this apparent distinction he concludes:

> This variability with respect to term lengths is not found in Ameritech's UNE pricing structure – presumably indicating this variability has no basis in cost.[8]

Q.10 Before responding Dr. Zolnierek's conclusion, can you please explain what is meant by "pricing structure?"

A. 10 Pricing structure (as opposed to pricing levels) refers to the particular combination of price elements charged. Per-unit charges, flat rates, fixed fees, bundles of units, volume discounts, term commitments, volume commitments, and combinations of the above are all different kinds of pricing structures (also known as rate structures). Pricing *levels* refer to the dollar value of the rate elements.

For example, rate plan #1 for a health club might be $200 per year and $10 per aerobics class. Rate plan #2 might be $300 per year and $12 per aerobics class. These rate plans have the *same* structure but different levels (plan #2 is higher than #1). In contrast, rate plan #3 might be $250 per year and no fee per class. This is a different rate structure (there is no per-class price), but whether it is a higher or lower level than rate plan #1 for a given consumer depends on that consumer's demand.

Q.11 Does Dr. Zolnierek's conclusion in the statement you quoted above have merit?

A. 11 Dr. Zolnierek's statement is a non sequitur and entirely without merit. It is not apparent to me and he does not explain why he concludes that the special access rate structure "presumably ... has no basis in cost" simply because it differs from the TELRIC rate structure.

The TELRIC rate structure is a regulatory construct, while the special access rate structure is market-based construct. Each generates revenue for the supplier in a different way. The fact that the special access rate structure differs from that of TELRIC does not imply that special access rates are not cost based. As I explained previously, in markets characterized with sunk costs, it is not uncommon for a producer to negotiate a long term

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[8] *Zolnierek Direct*, p. 24.

and/or volume-sensitive contract that commits the purchaser to a quantity and a price over time. In exchange for this commitment, the producer makes the fixed and sunk investment, or assumes other risks, and provides the services. The negotiation process permits the parties to determine if there is a mutually feasible and desirable price/quantity combination, and the commitment can be made before the investment is sunk.

Alternatively, a second means of making the investment economically feasible for the producer, one which more closely resembles the TELRIC rate structure, is for the buyer to pay the relevant fixed costs as a lump sum up front. These are alternative pricing structures that can both generate revenues that reflect costs.

In fact, Dr. Zolnierek recognizes this tradeoff between the UNE and the special access pricing structures when he observes:

> Under the current structure non-recurring costs for new UNE combinations generally exceed those for the same combinations when purchased under special access rates. As a result customers pay more up front and less on a recurring basis over time for UNE combinations than they do for the equivalent special access circuits.[9]

The existence of sunk investments is but one reason we see term and volume contracts in unregulated markets – there are a number of others as well, and they are consistent with cost-based pricing. For instance, FCC has pointed to the scale economies as basis for term and volume discounts. The FCC concluded that:

> ...reasonable volume and term discounts can be a useful and legitimate means of pricing special access services to recognize the efficiencies associated with larger volumes of traffic and the certainty of longer term deals.[10]

The FCC explicitly recognizes here that volume and term pricing structures are consistent with cost-based pricing.

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9 *Zolnierek Direct*, p. 24 (emphasis in original).

10 *In the Matter of Expanded Interconnection with Local Telephone Company Facilities; Amendment of the Part 69 Allocation of General Support Facility Costs*, FCC 92-440, adopted September 17, 1992, ¶ 199.

Q.12 In your testimony, you use the term "market-based" and "market determined" to characterize the pricing of special access services in the Chicago market. What is your basis for this characterization?

A. 12 A number of carriers have built their own networks and provide special access services in the Chicago market. According to an April, 2001 report submitted to the FCC by the United States Telephone Association, there are 11 CLEC fiber-based networks in the Chicago market.[11] Moreover, after examining detailed factual evidence of competition in the Chicago market, the FCC recently granted SBC Ameritech Illinois pricing flexibility in the Chicago MSA special access market.[12] These facts indicate to me that competition is influencing the pricing decisions of special access providers in the Chicago market.

D. SBC Ameritech Illinois' special access contract termination fees are not anticompetitive

Q.13 Dr. Zolnierek alleges that SBC Ameritech Illinois' special access rate structure is "an anticompetitive system."[13] Do you agree?

A. 13 No. If Dr. Zolnierek's claim is that termination fees as part of term contracts are anticompetitive, he is incorrect. Term contracts are, as I have explained, a legitimate and common pricing tool in competitive markets, and they typically include some sort of fee for early termination. In the absence of any fee for early termination, the benefits of the discounts associated with term agreements would be all one-sided, as the customer would receive the discounts, but the provider would bear all of the risk. Termination fees create confidence that the relationship will continue, which encourages investment. That is why we normally see termination fees associated with term contracts in competitive settings. The conventional economic wisdom is that these arrangements benefit society because of their positive effect on investment in long-lived assets.

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11 *Local Competition Provisions in the Telecommunications Act of 1996, Competition for Special Access Service, High-Capacity Loops, and Interoffice Transport, Submitted by the United states Telephone Association, Prepared for BellSouth, SBC, Qwest, and Verizon (April 5, 2001), Appendix B.*

12 *Memorandum Opinion and Order*, DA 02-823, adopted April 10, 2002.

13 *Zolnierek Direct*, p. 32.

Moreover, it is not clear how, and Dr. Zolnierek does not explain how, SBC Ameritech Illinois' termination fees can be anticompetitive. I presume from the context of his comments that the alleged victim of this supposedly anticompetitive behavior is the party that entered into the agreement (in this case, Globalcom), rather than any third-party competitor in the special access market.[14] These term contracts cannot, however, put Globalcom in a disadvantageous position relative to the position it would be in had it not entered into them. The structure of SBC Ameritech Illinois' special access contracts, as Dr. Zolnierek explains, is such that if the customer terminates early, the customers pays only the difference between what he paid under the term agreement and what he would have paid had he initially signed up for the shorter term corresponding to his actual use.[15] While Dr. Zolnierek is correct in noting that the prospect of paying this fee can affect the customer's decision whether or not to terminate the contract once some part of the term has passed, it is equally true that if the customer decides to pay the termination fee, he is in no worse position than he would have been had he not entered into the longer term agreement to begin with. So the customer cannot have been put in a disadvantageous position by entering into the agreement relative to not having done so. In fact, if he does not pay the termination fee but continues the contract, then he must be better off still, relative to not having signed it to begin with. Hence, there can be no "anticompetitive" effect against the party that entered into the agreement.

14 I cannot see how any third party could be harmed by Globalcom's having entered into term special access arrangements with SBC Ameritech Illinois, and Dr. Zolnierek does not articulate any such theory.

15 In fact, SBC Ameritech Illinois witness Sandra Douglas explains in her direct testimony that the "true-up" charges do not include interest on the savings that the customer enjoyed during the period of time that it was paying for service at rates lower than the rates that it should have paid based on the period of time for which the customer actually took service. Direct Testimony of Sandra Douglas on behalf of SBC Ameritech Illinois, Ameritech Illinois Exhibit 3.0 (Confidential Version), ICC Docket No. 02-0365, pp. 12-13.

E. The local-use restrictions applied by the Commission and the FCC do not "impair" the ability of CLECs to compete

Q.14 Dr. Zolnierek implies that the local-use restrictions applied by the Commission and the FCC to determine whether a special access circuit qualifies for conversion to an equivalent UNE combination "impair" the ability of CLECs "to offer telecommunications services in the manner they intend."[16] Is this a valid conclusion?

A. 14 Absolutely not. Dr. Zolnierek provides no analysis supporting his presumption that to the extent a carrier must use special access services rather than be permitted to convert the service to UNE combinations, this constitutes an impairment; nor does he offer any analysis of what he believes impairment to mean. It is clear on the basis of economic analysis, and the Supreme Court and more recently the DC Circuit Court have made clear, that mere cost differences are not sufficient to justify a finding of "impairment." If, for example, it is more costly for a CLEC to provide services over special access than via combinations of UNEs, this does not in itself constitute impairment. From an economic perspective, firms with different cost structures and different cost levels can and routinely do coexist and survive in real markets. As the Supreme Court noted in its UNE Remand Opinion, it cannot be considered an "impairment" if, for example, the lack of access to an element reduces a competitor's profits from 100% to 99%. In response to an analogy drawn by Justice Souter in a dissenting opinion, the Court said:

> The proper analogy here ...[is] the presence of a ladder tall enough to enable one to [change a lightbulb], but not without stretching one's arm to its full extension. A ladder one-half inch taller is not, 'within an ordinary and fair meaning of the word' [ref omitted] 'necessary' nor does its absence 'impair' one's ability to do the job.[17]

In addition, the Court objected to the FCC's interpretation of the necessary and impair standards because the Commission considered *only* whether alternatives to a particular requested element would be available *from the incumbent* itself. The Court

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[16] *Zolnierek Direct*, pp. 11, 22.

[17] *AT&T Corp. v. Iowa Utilities Bd.*, 525 U.S. 366, 390 (1999), note 11.

found that failing to consider whether there are *alternative* sources of the requested elements outside the incumbent's network, including self-provision,[18] is unacceptable.[19] The FCC *must* evaluate whether an element is available from an alternative source when determining whether that element satisfies the necessary and impair standards. As the DC Circuit Court reiterated more recently,

> Petitioners here do not explicitly attack the Commission for its refusal to incorporate the essential facilities doctrine, and we do not intend to suggest that the Act requires use of that doctrine's criteria. But what we do say is that cost comparisons of the sort made by the Commission, largely devoid of any interest in whether the cost characteristics of an "element" render it at all unsuitable for competitive supply, seem unlikely either to achieve the balance called for explicitly by Justice Breyer or implicitly by the Court as a whole in its disparagement of the Commission's readiness to find "any" cost disparity reason enough to order unbundling. The Commission's addition of a materiality notion, see Local Competition Order, 15 FCC Rcd at 3725, p 51 (finding impairment in any case where lack of access to an element "materially" diminishes ability to provide services), submits to the Court's ruling in a nominally quantitative sense (though the reality of such acquiescence cannot be measured and may be belied by the virtual identity of the old and new orders). More important, adding the adjective "material" contributes nothing of any analytical or qualitative character that would fulfill the Court's demand for a standard "rationally related to the goals of the Act." Iowa Utilities Board, 525 U.S. at 388.[20] [footnotes omitted]
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> To rely on cost disparities that are universal as between new entrants and incumbents in any industry is to invoke a concept too broad, even in

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[18] *AT&T Corp. v. Iowa Utilities Bd.*, 525 U.S. 366, 400 (1999): "which means that comparison with self-provision, or with purchasing from another provider, is excluded. ... But that judgment allows entrants, rather than the Commission, to determine whether access to proprietary elements is necessary, and whether the failure to obtain access to nonproprietary elements would impair the ability to provide services."

[19] *AT&T Corp. v. Iowa Utilities Bd.*, 525 U.S. 366, 389 (1999): "The Commission cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent' s network. That failing alone would require the Commission's rule to be set aside."

[20] *United States Telecom Association, et al. v. Federal Communications Commission, et al.*, 2002 WL 1040574 (D.C. Cir. May 24, 2002), Section B. "Kinds of Cost Disparities."

support of an initial mandate, to be reasonably linked to the purpose of the Act's unbundling provisions.[21]

Moreover, in determining that a CLEC must demonstrate that a substantial amount of local traffic is carried over special access circuits in order to request conversion of those circuits to UNEs, the FCC relied, in part, on a finding that there was insufficient evidence that a CLEC's ability to provide exchange access service, as opposed to local service, would be impaired by not having access to loop/transport combinations at TELRIC rates.[22] Again, there is simply no basis for concluding that the Commission's or FCC's local use restrictions constitute any sort of impairment.

Q.15 Would SBC Ameritech Illinois' termination liability you discussed earlier create an "impairment" for CLECs wishing to convert special access to UNE combinations, as implied by Dr. Zolnierek?[23]

A. 15 No. As I explained, the structure of the particular termination liability imposed by SBC Ameritech Illinois leaves the carrier in no worse situation financially than it would be in had it not entered into the agreement to begin with. Had it not entered into the agreement, it would have been subject to rates that themselves have been subject to rate caps that were determined on the basis of cost, as Mr. Wardin testifies. Today, these rates are subject to price flexibility, a result of the FCC's determination that the facilities are competitively supplied. If the elements are competitively supplied, the notion that they satisfy the Act's impair test is, from an economic standpoint, false on its face. I believe the DC Circuit articulated this view when it chastised the FCC for failing to evaluate, when applying the "impair" test, "whether the element is one for which multiple, competitive supply is unsuitable."[24]

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21 *United States Telecom Association, et al. v. Federal Communications Commission, et al.*, 2002 WL 1040574 (D.C. Cir. May 24, 2002), Section B. "Kinds of Cost Disparities."

22 *Supplemental Order Clarification*, FCC 00-183, released June 2, 2000, ¶ 16-17.

23 *Zolnierek Direct*, p. 32.

24 *United States Telecom Association, et al. v. Federal Communications Commission, et al.*, 2002 WL 1040574 (D.C. Cir. May 24, 2002), Section B. "Kinds of Cost Disparities."

Q.16 Does this conclude your rebuttal testimony?

A. 16 Yes.

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EDUCATION

Ph.D., Economics, UNIVERSITY OF CHICAGO, Chicago, IL, 1985

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ACADEMIC AND PROFESSIONAL EXPERIENCE

NORTHWESTERN UNIVERSITY, J. L. Kellogg Graduate School of Management, Evanston, IL, 1985–1995
Visiting Assistant Professor of Managerial Economics, 1993-1995
Assistant Professor of Managerial Economics, 1985-1992

HOOVER INSTITUTION, 1992-1993
National Fellow

UNIVERSITY OF CHICAGO, Department of Economics, Chicago, IL, 1983–1984
Instructor

CIVIL AERONAUTICS BOARD, Office of Economic Analysis, Washington, DC, Summers, 1979 and 1980
Staff Economist

HONORS & AWARDS

Guthman Research Chair, Kellogg Graduate School of Management, Northwestern University, Summer 1994.

Hoover National Fellowship, Hoover Institution, 1992-1993.

Faculty Research Fellow, National Bureau of Economic Research, 1987-1990.

Pepsico Research Chair, Northwestern University, 1990.

Kellogg Research Professorship, Northwestern University, 1989.

National Science Foundation Research Grant, 1987-1988.

Buchanan Chair, Kellogg Graduate School of Management, Northwestern University, 1987-1988.

IBM Chair, Kellogg Graduate School of Management, Northwestern University, 1986-1987.

RESEARCH INTERESTS

Industrial organization, antitrust economics, and business strategy, pricing, information industries, network industries, telecommunications policy, theory of the firm, compensation and incentives.

TEACHING

Courses taught: Pricing Strategy; Information, Communication, and Competition (strategy and competition in communications industries); Intermediate Microeconomic Theory; Managerial Economics (microeconomic theory as applied to business strategy and decision making) at the M.B.A. level, The Economics of Information at the Ph.D. level.

Also qualified to teach: graduate Microeconomic Theory; Industrial Organization and Labor Economics; the Economics of Personnel; Public Finance; Applied Game Theory.

PUBLICATIONS AND WORKING PAPERS

1) "Economic Theories of Tying and Foreclosure Applied—And Not Applied—in *Microsoft,*" with Steven S. Wildman, *Antitrust*, vol. 14, no. 1, 1999, pp.48-52.
2) "Effecting a Price Squeeze Through Bundled Pricing," with Steven S. Wildman, in *Competition, Regulation, and Convergence: Current Trends in Telecommunications Policy Research*, Gillett and Vogelsang, Eds., (New Jersey: Lawrence Erlbaum Associates, Inc.) 1999, pp. 1-17.
3) "Worldwide Wait? How the Telecom Act's Unbundling Requirements Slow the Development of the Network Infrastructure," with Ken Dunmore and Frank Pampush, *Industrial and Corporate Change*," vol.7, no. 4, 1998, pp. 615-621.
4) "The Pricing of Customer Access in Telecommunications," with Steven S. Wildman, *Industrial and Corporate Change*, vol. 5, no. 4, 1996, pp. 1029-1047.
5) "Bonus and Penalty Schemes as Equilibrium Incentive Devices, With Application to Manufacturing Systems," with Pau Olivella, *Journal of Law, Economics, and Organization*, 10, Spring 1994, pp. 1-34.
6) "Diversification as a Strategic Preemptive Weapon," *Journal of Economics and Management Strategy*, 2, Spring 1993, pp. 41-70.
7) "Using the Capital Market as a Monitor: Corporate Spin-offs in an Agency Framework," *RAND Journal of Economics*, 22, Winter 1991, pp. 505-518.
8) "Firm Organization and the Economic Approach to Personnel Management, *American Economic Review*, vol. 80, no. 2, May 1990, pp. 23-27.
9) "The Introduction of New Products," with Edward P. Lazear, *American Economic Review*, vol. 80, no. 2, May 1990, pp. 421-426.
10) "Ability, Moral Hazard, Firm Size, and Diversification," *RAND Journal of Economics*, 19, Spring 1988, pp. 72-87.
11) "Worker Reputation and Productivity Incentives," *Journal of Labor Economics*, vol. 5, no. 4, October 1987, part 2, pp. S87-S106.
12) "Imitation and Differentiation in New Product Markets," under second review at *RAND Journal of Economics.*
13) "Competition, Relativism, and Market Choice," with Edward P. Lazear, C.M.S.E.M.S. Working Paper No. 750, October 1987.
14) "An Empirical Analysis of Agency Theory and the Choice of Merger Partners," mimeo, Northwestern University, August 1987.
15) "The Role of Managerial Ability and Moral Hazard in the Determination of Firm Size, Growth and Diversification," Ph.D. Dissertation, University of Chicago, August 1985.

RESEARCH IN PROGRESS

"Balancing Concerns of Price Squeeze and Pricing Flexibility in Regulated Telecommunications Industries," with Gordon Green and Frank X. Pampush.

"Licensing and Access to Innovations in Telecommunications and Information Services," with Steven S. Wildman.

"Optimal Intercarrier Compensation Mechanisms in Network Industries," with Alan S. Frankel.

"Interconnection Pricing in Telecommunications."

SELECTED TALKS

"Broadband Deployment in the United States," Emerging Opportunities in Broadband Symposium, Northwestern University, Evanston, Illinois, December 2001.

"Local Competition in Illinois," Illinois Telecommunications Symposium, Northwestern University, Evanston, Illinois, December 2000.

"Licensing and Access to Innovations in Telecommunications and Information Services," Telecommunications Policy Research Conference, Alexandria, Virginia, September, 2000.

"Effecting a Price Squeeze Through Bundled Pricing," Federal Communications Commission, Washington, D.C., May 1999.

"Competitive and Strategic Use of Optional Calling Plans and Volume Pricing Plans," The Institute for International Research Conference for Competitive Pricing of Telecommunications Services, Chicago, Illinois, July 1998.

"Effecting a Price Squeeze Through Bundled Pricing," Consortium for Research in Telecommunications Policy Conference, University of Michigan, Ann Arbor, Michigan, June 1998.

"The Pricing of Customer Access in Telecommunications," Conference on Public Policy and Corporate Strategy for the Information Economy, Evanston, Illinois, May 1996.

"Diversification as a Strategic Preemptive Weapon," University of Iowa, Iowa City, Iowa, February 1994.

"Diversification as a Strategic Preemptive Weapon, "University of Buffalo, Buffalo, New York, February 1994.

"Diversification as a Strategic Preemptive Weapon," University of Southern California, Los Angeles, California, December 1993.

"Strategic Pricing" Winter Meetings of the Econometric Society, Discussant, Anaheim, California, December 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Michigan State University, Lansing, Michigan, November 1993.

"Diversification as a Strategic Preemptive Weapon," Rutgers University, New Brunswick, New Jersey, November 1993.

"Diversification as a Strategic Preemptive Weapon," University of California at Santa Cruz, Santa Cruz, California, November 1993.

"Diversification as a Strategic Preemptive Weapon," Graduate School of Business, Stanford University, Stanford, California, November. 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Purdue University, West Lafayette, Indiana, September 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Summer Meetings of the Econometric Society, Boston University, Boston, Massachusetts, June 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," University of California, Department of Economics, Berkeley, California, May 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Stanford University, Graduate School of Business, Stanford, California, May 1993.

"Diversification as a Strategic Preemptive Weapon," Stanford University, Graduate School of Business, Stanford, California, April 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Hoover Institution, Stanford, California, April 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," University of California, Graduate School of Business, Berkeley, California, February 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Stanford University, Department of Economics, Stanford, California, February 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Hoover Institution, Stanford, California, January 1993.

"Pricing Strategies," Session Discussant, 1992 North American Winter Meeting of The Econometric Society, Anaheim, California, January 1992.

"Diversification as a Strategic Preemptive Weapon," University of Toronto, Toronto, Canada, November 1991.

"Diversification as a Strategic Preemptive Weapon," Queen's University, Kingston, Ontario, Canada, November 1991.

"Bonuses and Penalties as Equilibrium Incentive Devices, with Application to Manufacturing Systems," University of Chicago, Chicago, Illinois, June 1991.

"The Timing of Entry into New Markets," Summer Meetings of the Econometric Society, University of Pennsylvania, Philadelphia, Pennsylvania, June 1991.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," University of Chicago, Chicago, Illinois, April 1991.

"Bonuses and Penalties as Equilibrium Incentive Devices, with Application to Manufacturing Systems," Winter Meetings of the Econometric Society, Washington, D.C., December 1990.

"Corporate Spin-offs in an Agency Framework," University of Washington, Seattle, Washington, October 1990.

"The Timing of Entry Into New Markets," University of British Columbia, Vancouver, British Columbia, October 1990.

"Corporate Spin-offs in an Agency Framework," Texas A&M University, College Station, Texas, April 1990.

"Firm Organization and the Economic Approach to Personnel Management," Winter Meetings of the American Economic Association, New York, New York, Dec. 1989.

"Corporate Spin-offs in an Agency Framework," Western Finance Association Meetings, Seattle, Washington, June 1989.

"Corporate Spin-offs in an Agency Framework," University of Rochester, Rochester, New York, May 1989.

"Corporate Spin-offs in an Agency Framework," North American Summer Meetings of the Econometric Society, Minneapolis, Minnesota, June 1988.

"Competition, Relativism, and Market Choice," North American Summer Meetings of the Econometric Society, Berkeley, California, June 1987.

"Competition, Relativism, and Market Choice," University of Chicago, Chicago, Illinois, April 1987.

"Rate Reform and Competition in Electric Power," Discussant, Conference on Competitive Issues in Electric Power, Northwestern University, Evanston, Illinois, March 1987.

"Worker Reputation and Productivity Incentives," New Economics of Personnel Conference, Arizona State University, Tempe, Arizona, April 1986.

"Ability, Moral Hazard, and Firm Diversification," Yale University, New Haven, Connecticut, February 1985.

"Ability, Moral Hazard, and Firm Diversification," University of Rochester, Rochester, New York, February 1985.

"Ability, Moral Hazard, and Firm Diversification," Stanford University, Stanford, California, February 1985.

"Ability, Moral Hazard, and Firm Diversification," University of Minnesota, Minneapolis, Minnesota, January 1985.

"Ability, Moral Hazard, and Firm Diversification," California Institute of Technology, Pasadena, California, January 1985.

"Ability, Moral Hazard, and Firm Diversification," Duke University, Durham, North Carolina, January 1985.

"Ability, Moral Hazard, and Firm Diversification," Northwestern University, Evanston, Illinois, January 1985.

"Ability, Moral Hazard, and Firm Diversification," Brown University, Providence, Rhode Island, January 1985.

"Ability, Moral Hazard, and Firm Diversification," Harvard University, Cambridge, Massachusetts, January 1985.

"Ability, Moral Hazard, and Firm Diversification," University of California - Los Angeles, Los Angeles, California, January 1985.

"Ability, Moral Hazard, and Firm Diversification," University of Pennsylvania, Philadelphia, Pennsylvania, December 1994.

REFEREEING

Dr. Aron has served as a referee for *The Rand Journal of Economics, the Journal of Political Economy, the Journal of Finance, the American Economic Review, the Quarterly Journal of Economics, the Journal of Industrial Economics, the Journal of Economics and Business, the Journal of Economic Theory, the Journal of Labor Economics, the Review of Industrial Organization, the European Economic Review, the Journal of Economics and Management Strategy, the International Review of Economics and Business, the Quarterly Review of Economics and Business, Management Science, the Journal of Public Economics, the Journal of Institutional and Theoretical Economics*, and the National Science Foundation.

SELECTED TESTIMONY AND OTHER ENGAGEMENTS

For a large local exchange carrier, *expert affidavit pertaining to irreparable harm caused if court declined to grant a stay of disputed performance remedy plan,* 2001.

For a large local exchange carrier, *expert testimony pertaining to the economic viability of constructing and provisioning ADSL services, including market definition and examination of competitive conditions*, 2001.

For a large local exchange carrier, *expert testimony pertaining to price squeeze allegations in the long distance market*, 2001.

For a large local exchange carrier, *expert testimony pertaining to the proper economic principles governing unbundling obligations*, 2001.

For a large local exchange carrier, *empirical examination and evaluation of competitive conditions in the local exchange market in a U.S. state*, 2001.

For a major manufacturer of mobile wireless communications equipment as defendants in a class action lawsuit, *expert affidavit examining the economic impediments to class certification, focusing on the determinants of price in the relevant equipment markets,* April 2001.

For a competitive local exchange carrier in a foreign market, *consulting support regarding the proper determination of avoided costs for resale of incumbent services,* April 2001.

For a major Japanese telecommunications equipment manufacturer, *evaluated the revenue potential and desirability of entering several advanced services equipment markets worldwide, for the purposes of assisting the client to evaluate a proposed acquisition,* February 2001.

For Ameritech Illinois, written testimony in the Illinois Commerce Commission's Investigation Into Certain Payphone Issues, *examined the economic and public policy issues pertaining to pricing of access lines for independent pay telephone providers,* April 2001.

For Ameritech Illinois, in the matter of the Illinois Public Utility Commission's Investigation Into Tariff Providing Unbundled Local Switching And Shared Transport, *provided written testimony regarding economic antitrust perspectives on obligations of firms to affirmatively help their competitors, and related public policy issues,* April 2001.

For Ameritech Illinois, in the matter of PrimeCo Communications Inc. v. Ameritech Illinois, Testimony of Debra J. Aron, *provided testimony as to the extent of competition in the Chicago area for high capacity (broadband) wireless and wireline dedicated access services; and as to the economic principles pertaining to the role of the courts in enforcing contracts,* January 2001.

For Avantel, S.A., in response to Request for Consultations by the U.S. Trade Representative (USTR) with the Government of Mexico before the World Trade Organization (WTO) regarding barriers to competition in Mexico's telecommunications market, *analyzed regulated switched access rates in the U.S. in comparison with those charged by Telmex,* November 2000.

For Southwestern Bell Telephone of Texas, Declaration of Debra J. Aron, *analyzed proposed regulation aimed at preventing incumbents from executing a price squeeze; developed a framework for evaluating claims of a price squeeze consistent with antitrust principles of predation,* August 2000.

For Yellow Cab Company, *analysis of regulatory requirements in the City of Chicago pertaining to valuation of medallions and valuation of capital for purposes of regulatory ratemaking proceeding,* 2000.

For Ameritech: written and oral testimony in Illinois and Michigan in various arbitration matters pertaining to the proper compensation for the use by competitors of client's facilities for foreign exchange services, 2000.

For a firm in the aluminum fabrication industry, in the matter of a potential merger between vertically integrated competitors: *developed a methodology for adjusting the HHI measure of market concentration to account for the vertical control by the merging parties of downstream competitors.* 2000.

For a large newspaper publisher, in the possible acquisition of the San Francisco Chronicle: *analyzed the potential antitrust impediments to an acquisition by the client of the Chronicle, including issues of geographic and product market definition, the interplay between advertising markets and customer markets,a nd the relevant implications of the Newspaper Preservation Act.* 1999.

For Ameritech Illinois: written and oral testimony regarding the proper economic interpretation of the standards for declaring a service competitive under the Illinois Public Utilities Act, and quantification of the extent of competition in relevant Illinois markets: *including discussion of market definition,; the relevance of entry conditions; the relevance of resale competition and analysis of various resale entry strategies; the interdependence of resale and facilities-based entry strategies; and implementation of a new technology-based method of measuring market participation,* 1999-2000.

For Rand McNally in the acquisition of Thomas Brothers Maps: *analyzed market definition, concentration, and efficiencies from the proposed merger,* 1999.

For Ameritech: affidavit submitted jointly with Robert G. Harris to the Federal Communications Commission in the matter of "unbundled network elements" and commenting on the proper interpretation of the "Necessary and Impair" standard, *including discussion of entry conditions and the business-case approach to valuation of an entry strategy*, April 1999; reply affidavit May 1999.

For Ameritech: "An Analysis of Market Power in the Provision of High-Capacity Access in the Chicago LATA," submitted to the Federal Communications Commission, *including an analysis of the US DOJ merger guidelines and their applicability to regulatory relief in a regulated market, as well as extensive empirical modeling of the costs and business case for network buildout of high capacity facilities,* February 1999.

For Ameritech: "Proper Recovery of Incremental Signaling System 7 (SS7) Costs for Local Number Portability," White Paper submitted to the Federal Communications Commission, April 1999.

For Universal Studios, in the proposed merger between Bertelsmann & Kirsch: *analyzed the potential anticompetitive effects of control of the programming rights for anchor channels, satellite capacity, and decoder technology. Evaluated potential remedies in media mergers, 1998.*

Written and oral testimony on behalf of Ameritech Indiana regarding the economics of resale of local exchange services; testimony on behalf of Ameritech Illinois regarding a new model and methodology for estimating the cost of unbundled local switching; written and oral testimony on behalf of Ameritech Michigan regarding the provision of intraLATA toll service to customers of competing basic local exchange service providers; written and oral testimony on behalf of Ameritech Wisconsin regarding the determination of proper forward looking costs for purposes of determining Federal Universal Service support; 1998.

For Ameritech: affidavit submitted to the Federal Communications Commission in the matter of "Telephone Number Portability," regarding competitively neutral cost recovery for shared and common costs for permanent local number portability.

For Ameritech Michigan: affidavit submitted to the Federal Communications Commission in the matter "Application by Ameritech Michigan for Authorization under Section 271 of the Communications Act to Provide In-Region, InterLATA Service in the State of Michigan."

For Flowers Industries, in the proposed merger between Flowers and Franklin Baking Company: *analyzed potential efficiencies from the merger, market definition, and potential entry into the relevant geographic market.*

For Optus Vision of Australia, in the proposed merger between Australis and Foxtel: *analyzed the competitive effects in the Australian pay TV industry of the proposed merger. Specifically analyzed issues of market power in the cable television industry with respect to cable TV programming and the ease of entry and exit.*

For the Appraisal Institute: in the case of The Appraiser's Coalition, et. al, v. Appraisal Institute, et. al, Civil Action No. 93 C 913, U.S. District Court, Northern District of Illinois, Eastern Division, *analyzed issues of market power, market structure, market share, concentration, entry and exit, and antitrust injury.*

Written and oral testimony on behalf of Ameritech in Illinois and Wisconsin in state arbitration proceedings pursuant to the Telecommunications Act of 1996, regarding the issue of limitations of liability in provision of telecommunications services; testimony on behalf of Ameritech in five states in proceedings before the state regulatory commissions to determine economic costs of providing unbundled network elements to competitors under the FCC's "TELRIC" cost theory pursuant to the Telecommunications Act of 1996; 1996-1997.

For the FTC: Revco's proposed acquisition of Rite-Aid. *Analyzed issues of market power, market structure, market share, concentration, entry and exit, and antitrust injury.*

For the Estate of Reginald F. Lewis: in the case of Carlton Investments v. TLC Beatrice International Holdings, Inc, Loida Nicolas Lewis, as Executrix of the Estate of Reginald F. Lewis, et al., *analyzed structure of executive compensation and firm and industry performance to determine whether compensation was in compliance with CEO's fiduciary duty.*

For Telus of Canada: analyzed economic issues pertaining to access to cable television channel capacity, bottleneck facilities, competition, and cost, November 1996.

For Ameritech Cellular: Reports of Debra J. Aron, "Pricing Strategy for Cellular Telephone Services," *Examined consumption patterns of cellular telephone services for demand elasticities and evidence of risk aversion, developed* entirely *new pricing strategies for cellular services in each of six major cellular telephone markets, and estimated the likely revenue effects of the strategy change for each market. Also developed* *and provided software to the client for estimating the revenue effects and the proposed pricing strategies,* October 1994, November 1995.

For Ameritech Michigan: testimony submitted to Michigan Public Service Commission on efficient pricing of local exchange services; testimony submitted to Michigan Public Service Commission on "just and reasonable" price increases in local exchange services; 1995.

For the Chicago Mercantile Exchange: "An Analysis of the Marketability of a CPI Future" (with Edward P. Lazear), February 1985.

For the University of Chicago: Report of Debra J. Aron, "Efficient Pricing of Telecommunications Equipment at the University of Chicago," 1985.

As a Professor at Northwestern University, Dr. Aron has supervised numerous student consulting projects in which pricing strategies were analyzed for industries including health clubs, toys, paper products, food products, athletic shoes, and hardware.

PROFESSIONAL ORGANIZATIONS

Member, American Economic Association

Member, Econometric Society

Associate Member, American Bar Association

PERSONAL INFORMATION

Born: March 15, 1957
Los Angeles, CA

May 2001